

MAMMALOGY.—A new subspecies of wood rat from Nayarit, Mexico, with new name-combinations for the *Neotoma mexicana* group. E. RAYMOND HALL, University of Kansas Museum of Natural History.

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At lower elevations on the west coast of the Republic of Mexico the big, rich brown, dark-tailed rodent *Neotoma (Hodomys) alleni* is the common wood rat. Nevertheless, *Neotoma mexicana* also occurs there in lesser numbers. At the lower elevations, individuals of *N. mexicana* are small. Smallness may be a response to warmth; anyhow *Neotoma mexicana* tends to be smaller in southern than in northern localities. Specimens from the coast of Nayarit pertain to an unnamed subspecies, which may be named and described as follows:

***Neotoma mexicana eremita*, n. subsp.**

Type.—Female, adult, skin with skull and body-skeleton, no. 64532 KU; 1 mile south of San Francisco, 50 feet, Nayarit; January 27, 1955; obtained by J. R. Alcorn; original no. 17830.

Range.—Known only from the type locality.

Diagnosis.—Smallest-skulled of the subspecies of *Neotoma mexicana*; dark grayish to dull ochraceous above.

Comparisons.—From *N. m. parvidens*, *N. m. eremita* differs in smaller average size, less ochraceous upper parts, and less whitish (more plumbeous) underparts. *N. m. eremita* is less ochraceous even than the larger, geographically adjacent, *N. m. tenuicauda*.

Remarks.—The holotype of this small, dull-colored, rat, judged by the height of the crowns of the upper molariform teeth, is slightly younger than the holotype (71586 USNM) of *parvidens* and slightly older than the holotype (33594/45629 USNM) of *tenuicauda*. All three are females. Among named kinds of *Neotoma*, *N. m. eremita* resembles *N. m. parvidens* more closely than any other.

Measurements.—The holotypes of *eremita*, *parvidens* and *tenuicauda*, in that order, yield measurements (in millimeters) as follows: Occipitonasal length, 39.0, 41.5, 41.7; basilar length, 31.6, 32.3, 33.7; zygomatic breadth, 19.7, 20.6, —; mastoid breadth, 15.0, 15.2, 15.8; interorbital breadth, 4.8, 5.3, 5.4; length

of nasals, 15.6, 15.5, 15.4; length of incisive foramina, 8.5, 8.6, 8.9; length of palatal bridge, 7.0, 7.3, 7.6; alveolar length of upper molar series, 7.2, 7.9, 8.9; total length, 301, 295, 340; length of tail, 142, 141, 160; length of hind foot, 30, 31, 31.

Specimens examined.—Two from the type locality.

With assistance from the National Science Foundation, the Kansas University Endowment Association, and Alford J. Robinson, the Museum of Natural History of the University of Kansas has accumulated specimens of related kinds of wood rats, for example of the nominal species *Neotoma distincta* Bangs, *Neotoma navus* Merriam, and *Neotoma torquata* Ward as well as specimens of most subspecies of *Neotoma ferruginea* Tomes and *Neotoma mexicana* Baird. Examination of these specimens and also of those in the United States National Museum including those of *Neotoma tropicalis* Goldman gives basis for arranging all those mentioned above in this paragraph as subspecies of one species for which the oldest available name is *Neotoma mexicana* Baird 1855.

For example, specimen no. 63079 KU, here referred to *parvidens*, from 1 mile NNW of Soledad (approximately 30 km north of Punto Ángel), 4,700 feet, Oaxaca, is structurally as well as geographically intermediate between *N. parvidens* and *N. f. isthmica* Goldman and is regarded as an intergrade. Of 11 specimens examined of *N. navus* from southeastern Coahuila some have tails as short as *N. m. inornata* Goldman, the kind next adjacent to the north, and the expansion posteriorly of the frontals (not conspicuous in all specimens) occurs in some other subspecies of *N. mexicana* and leads to the conclusion that *N. navus* is only subspecifically different from *Neotoma mexicana inornata*. The differences between *N. tropicalis* and *N. f. isthmica* are of no

greater degree than are the differences between some other pairs of subspecies that are known to intergrade—*N. m. tenuicauda* Merriam and *N. m. madrensis* Goldman for instance. It is supposed, therefore, that specimens from geographically appropriate localities will reveal that *N. tropicalis* does intergrade with *M. f. isthmica*. In fact, Dalquest (Journ. Washington Acad. Sci. **41**: 363. Nov. 14, 1951) indicated subspecific status under *Neotoma ferruginea* for *Neotoma distincta* and *Neotoma torquata*. Hooper (Occ. Pap. Mus. Zool. Univ. Michigan no. 565: 22. Mar. 31, 1955) concluded that *Neotoma mexicana* and *Neotoma ferruginea* were conspecific because he found intergradation between the two in specimens that he assigned to the subspecies *tenuicauda* and for which he used the name-combination *Neotoma mexicana tenuicauda*. He did not, however, implement his conclusion with name-combinations for the kinds (other than *tenuicauda*) affected. Doing this and doing the same thing for the other nominal species that study reveals are only subspecies reduces the number of species in what has been referred to as the *mexicana*-group from eight to two, namely to *Neotoma mexicana* and *Neotoma chrysomelas* J. A. Allen. I know of no intergrades between these last two.

Two other species thought by some students to belong in the *Neotoma mexicana* group are *Neotoma goldmani* Merriam, 1903, and *Neotoma angustapalata* Baker, 1951. Because of the resemblance of their bacula to those of *Neotoma albigula* it seems best in the present state of knowledge to assign *N. goldmani* and *N. angustapalata* to the *albigula*-group. Information on the baculum of *N. goldmani* has been published by Rainey and Baker (Univ. Kansas Publ., Mus. Nat. Hist., **7**: 623. June 10, 1955). The cleaned bacula of *N. angustapalata* that Keith R. Kelson has shown me are indistinguishable from those of *Neotoma albigula*, figured by Burt and Barkalow (Journ. Mamm. **23**: 291. Aug. 13, 1942).

The named kinds of the *mexicana* group of wood rats should stand as given below.

***Neotoma mexicana atrata* Burt.**

1939. *Neotoma mexicana atrata* Burt, Occ. Pap. Mus. Zool. Univ. Michigan no. **400**: 1,

March 1, type from 4 miles west of Carrizozo, Lincoln County, N. Mex. Known only from the type locality.

***Neotoma mexicana bullata* Merriam.**

1894. *Neotoma mexicana bullata* Merriam, Proc. Biol. Soc. Washington **9**: 122, July 2, type from Santa Catalina Mountains, Pima County, Ariz. Known only from the type locality.

***Neotoma mexicana chamula* Goldman.**

1909. *Neotoma ferruginea chamula* Goldman, Proc. Biol. Soc. Washington **22**: 141, June 25, type from mountains near San Cristóbal, 8,400 feet, Chiapas, México.

Marginal records.—Chiapas: type locality. Guatemala: Hda. Chancol, about 13 miles north of Huehuetenango (Goldman, 1910: 69); Volcán Santa Marfa (Goodwin, 1934: 54).

***Neotoma mexicana distincta* Bangs.**

1903. *Neotoma distincta* Bangs, Proc. Biol. Soc. Washington **16**: 89, June 25, type from Texolo [Teocelo, near Jalapa], Veracruz, Mexico. Known only from the type locality.

1951. *N[eotoma]. f[ferruginea]. distincta*, Dalquest, Journ. Washington Acad. Sci. **41**: 363, November 14.

***Neotoma mexicana eremita* Hall.**

1955. *Neotoma mexicana eremita* Hall, present paper, type from 1 mile south of San Francisco, 50 feet, Nayarit, México. Known only from the type locality.

***Neotoma mexicana fallax* Merriam.**

1894. *Neotoma fallax* Merriam, Proc. Biol. Soc. Washington **9**: 123, July 2, type from Gold Hill, Boulder County, Colo.

1910. *Neotoma mexicana fallax*, Goldman, North Amer. Fauna no. **31**: 56, October 19.

Marginal records (Goldman, 1910: 57–58, unless otherwise noted).—Colorado: 5 miles southwest of Fort Collins; 3½ miles west of Loveland, 5030 feet (26762 KU); Colorado Springs. New Mexico: Coyote Creek, 8 miles north of Guadalupita; Santa Rosa; Capitan Mountains; 1 mile south of Ruidoso, 6,500 feet. (35183 KU); east side of Sierra Blanca Mountains (Dice, 1942: 206); Manzano Mountains (V. Bailey, 1932: 183); San Mateo Peak; Datil Mountains (V. Bailey, 1932: 184); Grant; 18 miles north, 1 mile east of Farmington, 6,000

feet (34817 KU). Colorado: Cortez (Cary, 1911: 117); 4 miles west, 2 miles south of Cahone, 7,000 feet (34792 KU); Bedrock (Warren, 1942: 214); 1 mile southwest of Gateway, 4,600 feet (34773 KU); 2½ miles south of Fruita, 4,600 feet (34772 KU); Salida (Cary, 1911: 117); type locality.

***Neotoma mexicana ferruginea* Tomes.**

1862. *Neotoma ferruginea* Tomes, Proc. Zool. Soc. London, 1861, pt. 3, p. 282, April, type from Dueñas, Sacatepequez, Guatemala.

Marginal records.—Guatemala: San Lucas (Goodwin, 1934: 54); type locality.

***Neotoma mexicana griseoventer* Dalquest.**

1951. *Neotoma ferruginea griseoventer* Dalquest, Journ. Washington Acad. Sci. 41: 363, November 14, type from Xilitla, San Luis Potosí, México.

Marginal records.—San Luis Potosí: El Salto (Dalquest, 1951: 363); type locality.

***Neotoma mexicana inopinata* Goldman.**

1933. *Neotoma mexicana inopinata* Goldman, Journ. Washington Acad. Sci. 23: 471, October 15, type from Chuska Mountains, 8,800 feet, San Juan County, N. Mex.

Marginal records.—Utah: mouth Nigger Bill Canyon, east side of Colorado River, 4 miles above Moab Bridge, 3,995 feet (Durrant, 1952: 337). Colorado: Ashbaugh Ranch (Goldman, 1933: 472). New Mexico: Gallup (Goldman, 1933: 472); Zuñi Mountains (*ibid.*). Arizona: Canyon del Muerto and head Spruce Creek, 9,000 feet, Tunitcha Mountains (*ibid.*). Utah: War God Spring, Navajo Mountain (Durrant, 1952: 337).

***Neotoma mexicana inornata* Goldman.**

1938. *Neotoma mexicana inornata* Goldman, Proc. Biol. Soc. Washington 51: 60, March 18, type from Carmen Mountains, 6,100 feet, Coahuila, México. Known only from the type locality.

***Neotoma mexicana isthmica* Goldman.**

1904. *Neotoma isthmica* Goldman, Proc. Biol. Soc. Washington 17: 80, March 21, type from Huilotepec, 100 feet, 8 miles south of Tehuantepec, Oaxaca, México.

1910. *Neotoma ferruginea isthmica* Goldman, North Amer. Fauna no. 31: 71, October 19.

Marginal records (Goldman, 1910: 72).—Oaxaca: Coixtlahuaca. Chiapas: Teopisca; Canjob. Oaxaca: Juchitan; Puerto Ángel; Oaxaca.

***Neotoma mexicana madrensis* Goldman.**

1905. *Neotoma mexicana madrensis* Goldman, Proc. Biol. Soc. Washington 18: 31, February 2, type from Sierra Madre, 7,000 feet, near Guadalupe y Calvo, Chihuahua, México.

Marginal records (Goldman, 1910: 60, unless otherwise noted).—Chihuahua: Colonia Garcia; Pacheco; near Parral. Zacatecas: 4 miles east of Calabazal (Hooper, 1955: 22); Sierra de Valparaiso. Durango: El Salto; ½ mile south of Revolcaderos (Hooper, 1955: 22); 1½ miles west of San Luis (*ibid.*). Chihuahua: type locality; Carimechi (Burt and Hooper, 1941: 7).

***Neotoma mexicana mexicana* Baird.**

1855. *Neotoma mexicana* Baird, Proc. Acad. Nat. Sci. Philadelphia 7: 333, April, type from [mts.] near Chihuahua, Chihuahua, México.

Marginal records (Goldman, 1910: 56, unless otherwise noted).—Arizona: Rincon Mountains; Cave Creek, Chiricahua Mountains (Cahalane, 1939: 435). New Mexico: Animas Mountains (*ibid.*); Guadalupe Mountains (V. Bailey, 1932: 182). Texas: Fort Davis; Paisano. Chihuahua: Santa Eulalia. Durango: La Cienega de las Vacas. Sonora (Burt, 1938: 65): Cuchita; Oposura.

***Neotoma mexicana navus* Merriam.**

1903. *Neotoma navus* Merriam, Proc. Biol. Soc. Washington 16: 47, March 19, type from Sierra Guadalupe, Coahuila, México.

Marginal records.—Coahuila: type locality; Diamante Pass, 8,500 feet, Sierra Guadalupe, 18 miles east, 3 miles north of Saltillo (36346 KU).

***Neotoma mexicana ochracea* Goldman.**

1905. *Neotoma ferruginea ochracea* Goldman, Proc. Biol. Soc. Washington 18: 30, February 2, type from Atemajac, 4,000 feet, near Guadaluajara, Jalisco, México. Known only from the type locality.

***Neotoma mexicana parvidens* Goldman.**

1904. *Neotoma parvidens* Goldman, Proc. Biol. Soc. Washington 17: 81, March 21, type from Juquila, 5,000 feet, Oaxaca, México.

Marginal records.—Oaxaca: type locality;

1 mile NNW of Soledad [approx. 30 kilometers north of Punta Ángel], 4,700 feet (63079 KU).

***Neotoma mexicana picta* Goldman.**

1904. *Neotoma picta* Goldman, Proc. Biol. Soc. Washington **17**: 79, March 21, type from mountains near Chilpancingo, 10,000 feet, Guerrero, México.

1910. *Neotoma ferruginea picta* Goldman, North Amer. Fauna no. **31**: 72, October 19.

Marginal records (Goldman, 1910: 73).—Guerrero: Omilteme: type locality. Oaxaca: mountains near Ozolotepec.

***Neotoma mexicana pinetorum* Merriam.**

1893. *Neotoma pinetorum* Merriam, Proc. Biol. Soc. Washington **8**: 111, July 31, type from San Francisco Mountain, Coconino County, Ariz.

1910. *Neotoma mexicana pinetorum*, Goldman, North Amer. Fauna no. **31**: 58, October 19.

Marginal records (Goldman, 1910: 59, unless otherwise noted).—Arizona: south rim, Grand Canyon (V. Bailey, 1935: 16); type locality; Winona (226370 BS). New Mexico: 10 miles southwest of Quemado; 10 miles west of Chloride; Kingston. Arizona: Prieto Plateau (205483 BS); Bradshaw Mountains (215809 BS); Simmons (215529 BS); Pine Spring (202570 BS).

***Neotoma mexicana scopulorum* Finley.**

1953. *Neotoma mexicana scopulorum* Finley, Univ. Kansas Publ., Mus. Nat. Hist. **5**: 529, August 15, type from 3 miles northwest of Higbee, 4,300 feet, Otero County, Colo.

Marginal records (Finley, 1953: 534).—Colorado: type locality; Two Buttes [the peak]. Oklahoma: Tesequite Canyon. New Mexico: Clayton; Sierra Grande; Oak Cañon, Raton Range. Colorado: Trinidad; 20 miles east of Walsenburg.

***Neotoma mexicana sinaloae* J. A. Allen.**

1898. *Neotoma sinaloae* J. A. Allen, Bull. Amer. Mus. Nat. Hist. **10**: 149, April 12, type from Tatameles, Sinaloa, México.

1910. *Neotoma mexicana sinaloae*, Goldman, North Amer. Fauna no. **31**: 60, October 19.

Marginal records.—Sonora (Burt, 1938: 65): San Javier; Mira Sol. Durango: Chacala (Goldman, 1910: 61). Sinaloa: Chele (Hooper, 1955: 22); Mazatlan (Goldman, 1910: 61). Sonora: Camoa (Burt, 1938: 65).

***Neotoma mexicana solitaria* Goldman.**

1905. *Neotoma ferruginea solitaria* Goldman, Proc. Biol. Soc. Washington **18**: 31, February 2, type from Nentón, 3,500 feet, Guatemala.

Marginal records.—Guatemala: type locality; Sacapulas (Goodwin, 1942: 170–171). Honduras: Cerro Puca (*ibid.*).

***Neotoma mexicana tenuicauda* Merriam.**

1892. *Neotoma tenuicauda* Merriam, Proc. Biol. Soc. Washington **7**: 169, September 29, type from north slope El Nevada de Colima, 12,000 feet, Jalisco, México.

1955. *Neotoma mexicana tenuicauda*, Hooper, Occ. Pap. Mus. Zool. Univ. Michigan no. **565**: 22, March 31.

Marginal records (Goldman, 1910: 74, unless otherwise noted).—Jalisco: mountains about 10 miles north of Bolaños. Zacatecas: Plateado. Aguascalientes: Sierra Fría (Hooper, 1955: 22). Jalisco: 2 miles NNW of Magdalena (*ibid.*). Michoacán: Zamora; 9 miles southeast of Pátzcuaro, 8,000 feet (Hall and Villa, 1949: 467); Tancítaro, 7,850 feet (*ibid.*). Jalisco: type locality; Talpa; San Sebastian.

***Neotoma mexicana torquata* Ward.**

1891. *Neotoma torquata* Ward, Amer. Nat. **25**: 160, February, type from abandoned mine between Tetela del Volcán and Zacualpan, Morelos, México.

1894. *Neotoma fulviventris* Merriam, Proc. Soc. Washington **9**: 121, July 2, type from Toluca Valley, México, México.

1894. *Neotoma orizabae* Merriam, Proc. Biol. Soc. Washington **9**: 122, July 2, type from Volcán de Orizaba, Puebla, México.

1951. *N[eotoma]. f[erruginea]. torquata*, Dalquest, Journ. Washington Acad. Sci. **41**: 363, November 14.

Marginal records. — Hidalgo: Encarnación (Goldman, 1910: 64). Veracruz: 3 km east of Las Vigas, 8,000 feet (19840 KU). Puebla: Tehuacán, 1,700 m (Hooper, 1947: 55). Morelos: 2 km south of Jonacatepec (Davis and Russell, 1954: 77). México: north slope of Volcán Toluca (Goldman, 1910: 64).

***Neotoma mexicana tropicalis* Goldman.**

1904. *Neotoma tropicalis* Goldman, Proc. Biol. Soc. Washington **17**: 81, March 21, type from Totontepec, 6,500 feet, Oaxaca. Known only from the type locality.

***Neotoma mexicana vulcani* Sanborn.**

1935. *Neotoma ferruginea vulcani* Sanborn, Field Mus. Nat. Hist. Publ. 340, zool. ser., 20 (11): 84, May 15, type from south slope of Volcán Tajumulco, San Marcos, 13,200 feet, Guatemala. Known only from the type locality.

***Neotoma chrysomelas* J. A. Allen.**

1908. *Neotoma chrysomelas* J. A. Allen, Bull. Amer. Mus. Nat. Hist. 24: 653, October 13, type from Matagalpa, Matagalpa, Nicaragua.

Marginal records.—Honduras (Goodwin, 1942: 171): Montana Vasquez; Hatillo. Nicaragua: type locality.

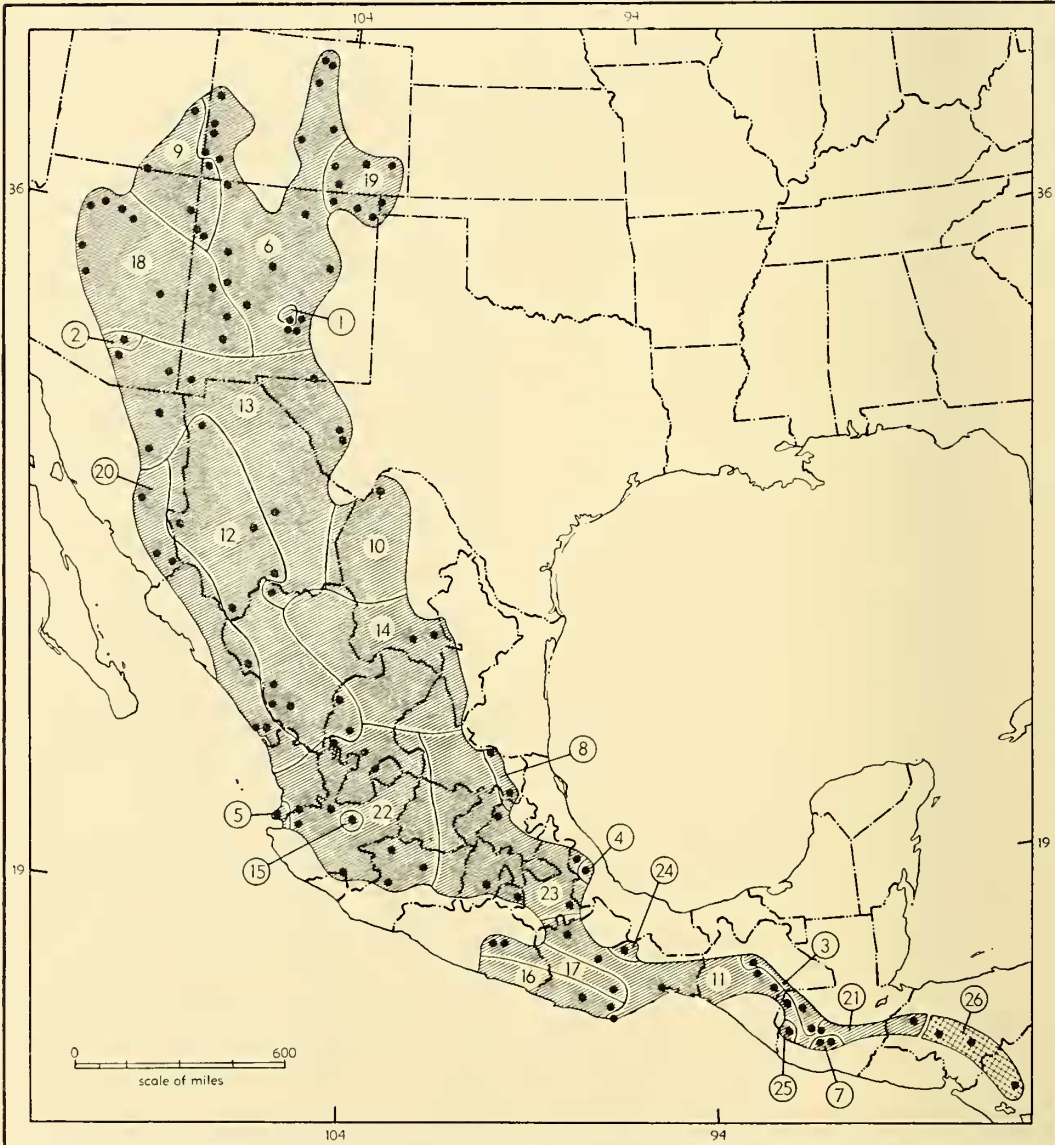


FIG. 1.—Geographic distribution of *Neotoma mexicana* and *Neotoma chrysomelas*

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| 1. <i>Neotoma m. atrata</i> Burt. | 9. <i>Neotoma m. inopinata</i> Goldman. | 18. <i>Neotoma m. pinetorum</i> Merriam. |
| 2. <i>Neotoma m. bullata</i> Merriam. | 10. <i>Neotoma m. inornata</i> Goldman. | 19. <i>Neotoma m. scopulorum</i> Finley. |
| 3. <i>Neotoma m. chamula</i> Goldman. | 11. <i>Neotoma m. isthmica</i> Goldman. | 20. <i>Neotoma m. sinaloae</i> J. A. Allen. |
| 4. <i>Neotoma m. distincta</i> Bangs. | 12. <i>Neotoma m. madrensis</i> Goldman. | 21. <i>Neotoma m. solitaria</i> Goldman. |
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| | 17. <i>Neotoma m. picta</i> Goldman. | 26. <i>Neotoma chrysomelas</i> J. A. Allen. |